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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/628,122	07/28/2000	Candice Hellen Brown Elliot	CLRV-001	2606

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EXAMINER	
WANG, JIN CHENG	
ART UNIT	**PAPER NUMBER**
2628	

DATE MAILED: 09/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/628,122	ELLIOT, CANDICE HELLEN BROWN	
	Examiner	Art Unit	
	Jin-Cheng Wang	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,7-10,12-20,22-25,27-39,42-46 and 51-55* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5, 7-10, 12-20, 22-25, 27-39, 42-46 and 51-55* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/13/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAIL ACTION

Response to Amendment

Applicant's submission filed on 7/1/2006 has been entered. Claims 6, 11, 21, 26, 40-41 and 47-50 have been canceled. Claims 1, 7, 10, 12, 15, 16, 20, 22, 23-24, 37-39, 42 and 51 have been amended. Claims 1-5, 7-10, 12-20, 22-25, 27-39, 42-46 and 51-55 are pending in the present application.

Response to Arguments

Applicant's arguments filed July 1, 2006 have been fully considered but are not found persuasive in view of the new ground(s) of rejection set forth below.

Claim 1 recites the limitation "the same driver" in lines 13-14 of the claim. There is insufficient antecedent basis for this limitation in the claim.

For example, the base claim 1 recites the two "wherein each said emitter is connected to a driver and at least two neighboring blue emitters in the at least one row of pixel elements are connected to the same driver".

It may be understood what "the same driver" set forth in the lines 13-14 of the claim 1 refers to "a driver" recited earlier in the claim. However, the blue emitters of different pixel elements are not connected to the same driver that the green emitters or red emitters are connected to because applicant's claim 1 requires "each of said emitters is connected to a driver". "Each said emitter" clearly refers to one of a blue emitter, red emitters and green emitters in said three-color pixel element. However, red emitters and/or green emitters are

connected to different drivers. There is only one blue emitter in said three-color pixel element. However, applicant's claim 1 recites, "each said emitter is connected to a driver".

The Claim 1 is further rejected under 35 U.S.C. 103(a) as being unpatentable over Maeshima et al. U.S. Patent No. 6,486,923 (hereinafter Maeshima).

Applicant argues in Page 35-38 that "Applicant respectfully submits that emitters in different columns, as 'two neighboring blue emitters' would be in either Applicant's or Maeshima's pixel configuration, are conventionally not connected to the same driver. Each column driver conventionally drives all subpixel units in the column, but does not drive subpixel units in adjacent or remote columns." Applicant's argument is self contradictory in that applicant argues that, "each column driver conventionally drives all subpixel units in the column". However, each column driver conventionally drives all subpixel units in the column means that two neighboring blue emitters in the column is driven by the same column driver.

Maeshima teaches the claim limitation set forth in the claim 1. Although Maeshima does not discloses the driver setting in applicant's Fig. 3B, Maeshima however teaches in Fig. 1 each emitter of the plurality of pixel elements receive data signal from the column drivers and therefore Maeshima discloses that each said emitter is connected to a column driver and at least two neighboring blue emitters in the same column is connected to the same column driver. Moreover, Maeshima also teaches that each emitter of the plurality of pixel elements is subject to the display control signal from the same row driver. Therefore, Maeshima discloses each said emitter is connected to a driver and at least two neighboring blue emitters in at least one row of pixel elements are connected to the same row driver.

Applicant claim 1 recites the limitation of each said emitter is connected to a driver and at least two neighboring blue emitters in the at least one row of pixel elements are connected to the same driver. However, it is well known that any emitter of the blue emitter, red emitters and green emitters is connected to a data driver, in which the emitters receive data signal and any emitter of the blue emitter, red emitters and green emitters is connected to a driver, in which the emitters receive control signal. From Maeshima, each of the blue emitter, red emitters and green emitters receives data signal or control signal from a row driver or a column driver and the neighboring blue emitters are connected to the same row driver or column driver.

Applicant also argues with respect to the claims 7, 12 and similar claims with regards to larger blue emitter area limitation and drive-to-luminance gain limitation. However, a pixel element having larger blue emitter area is well known in the art (See for example Fossum et al. U.S. Patent No. 6,137,000) and therefore the pixel element has a larger drive-to-luminance gain. Maeshima's Fig. 10C is only a schematic, the actual geometry or shape of the blue emitter or red emitters or green emitters may be different and are easily manufactured to have different sizes and shapes. One of the ordinary skill in the art understand Maeshima's pixel element in Fig. 10C includes emitters having different sizes and shapes. Emitters having different sizes and shapes are well known in the art (See for example Fossum et al. U.S. Patent No. 6,137,000).

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 16-20, 31-33, 34-36, 39 and 46 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 recites the limitation "the same driver" in lines 13-14 of the claim. There is insufficient antecedent basis for this limitation in the claim.

For example, the base claim 1 recites the two "wherein each said emitter is connected to a driver and at least two neighboring blue emitters in the at least one row of pixel elements are connected to the same driver".

It may be understood what "the same driver" set forth in the lines 13-14 of the claim 1 refers to "a driver" recited earlier in the claim. However, the blue emitters of different pixel elements are not connected to the same driver that the green emitters or red emitters are connected to because applicant's claim 1 requires "each of said emitters is connected to a driver". "Each said emitter" clearly refers to one of a blue emitter, red emitters and green emitters in said three-color pixel element. However, red emitters and/or green emitters are connected to different drivers. There is only one blue emitter in said three-color pixel element. However, applicant's claim 1 recites "each said emitter is connected to a driver".

The base claim 16 (also the base claim 34, or the base claim 39) recites "wherein each of said emitters is connected to a driver and at least two neighboring blue emitters in the at least one row of pixel elements are connected to the same driver".

Claim 16 recites the limitation "the same driver" in line 11 of the claim. There is insufficient antecedent basis for this limitation in the claim.

It may be understood that "the same driver" set forth in the claim 16 refers to "a driver" recited earlier in the claim. However, the blue emitters of different pixel elements are not connected to the same driver that the green emitters or red emitters are connected to because applicant's claim 1 requires "each of said emitters is connected to a driver". "Each of said emitters" clearly refers to one of a blue emitter, red emitters and green emitters in said three-color pixel element. However, red emitters and/or green emitters are connected to a different driver, not the same driver a blue emitter is connected to. However, applicant's claim 16 recites "each of said emitters is connected to a driver".

The base claim 46 recites the claim limitation "wherein said at least two neighboring blue emitters are connected to a single row driver". However, in Fig. 3B of applicant's specification, the two neighboring blue emitters 42A and 42B are respectively in the second row and the first row (to the row driver 74 and the row driver 72), i.e., the two neighboring blue emitters 42A and 42B are in different rows, not in the same row as recited in the base claim 42. Moreover, the two neighboring blue emitters 42A and 42B are connected to **the column driver 64**, rather than the same row driver such as the row driver 72 or the row driver 74. Therefore, the metes and bounds of the coverage of at least the claim 46 cannot be ascertained.

To comply with the "written description" requirement of 35 U.S.C. 112, first paragraph, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filling date sought, he or she was in possession of the invention. The invention is, for purposes of the "written description" inquiry, whatever is now claimed. Vas-Cath, Inc. v. Mahurkar, 935 F.2d

1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991). For purposes of written description, one shows "possession" by descriptive means such as words, structures, figures, diagrams, and formulas that fully set forth the claimed invention. Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997). Such descriptive means cannot be found in the disclosure for the inventions of the base claim 1, 16, 31, 34, 39, 42 and 51.

Claims 2-5 depend upon the base claim 1 and are rejected due to their dependency on the base claim 1.

The claims 17-20 depend upon the base claim 16 and are rejected due to their dependency on the claim 16.

The claims 32-33 depend upon the base claim 31 and are rejected due to their dependency on the claim 31.

The claims 35-36 depend upon the base claim 34 and are rejected due to their dependency on the claim 34.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5, 16-20, 31-33, 34-36, and 39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

For example, the base claim 1 recites the "a driver" in line 12 of the claim and "the same driver" in lines 13-14 of the claim. However, it is not clear whether "the same driver" refers to the "a driver". Clarification is required.

For example, the base claim 1 recites the "a driver" in line 9 of the claim and "the same driver" in line 11 of the claim. However, it is not clear whether "the same driver" refers to the "a driver". Clarification is required.

Claims 2-5 depend upon the base claim 1 and are rejected due to their dependency on the base claim 1.

The claims 17-20 depend upon the base claim 16 and are rejected due to their dependency on the claim 16.

The claim 31 is subject to the same rationale of rejection set forth in the claim 16.

The claims 32-33 depend upon the base claim 31 and are rejected due to their dependency on the claim 31.

The claim 34 is subject to the same rationale of rejection set forth in the claim 34.

The claims 35-36 depend upon the base claim 34 and are rejected due to their dependency on the claim 34.

Reasons for Allowance

The following is an examiner's statement of reasons for allowance:

The Claim 37 or 38 set forth in the amended claimed invention of 01/31/2005 would provide a three-color pixel element of spaced-apart emitters in which the pixel element consists of a blue emitter disposed at the center of a pair of opposing red and a pair of opposing green

emitters and the plurality of pixel elements may be arranged in rows and columns to form a display in which this array provides better perceived resolution and appearance of single full color displays by matching the human vision system. The claim invention would also provide the drive matrix for the pixel array consists of a plurality of rows and columns of the three-color pixel element and the drive matrix consists of a plurality of row and column drivers to drive the individual emitters in which the row drivers drive the red, green and blue emitters in each row, and the red and green emitters in each column are driven by a single column driver and a single column driver drives two columns of blue emitters. Thus, the number of drive lines and associated driver electronics used in the prior art are reduced in the claimed invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 7-9, 10, 12-14, 15, 16-20, 22-24, 25, 27-29, 30, 31-33, 34-36, 39, 42-46, 51-55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeshima et al. U.S. Patent No. 6,486,923 (hereinafter Maeshima).

Re claims 1-5, 7-9, 10, 12-14, 15, 16-20, 22-24, 25, 27-29, 30, 31-33, 34-36, 39, 42-46, 51-55, Maeshima discloses a display comprising substantially a plurality of three-color pixel

elements that form at least one row of said pixel elements, said three-color pixel element comprising:

A blue emitter disposed at an origin of a rectangular coordinate system having four quadrants (Fig. 10C);

A pair of red emitters spaced apart from said blue emitter and symmetrically disposed about said origin in a first pair of opposing quadrants of said rectangular coordinate system (Fig. 10C);

A pair of green emitters spaced apart from said blue emitter and symmetrically disposed about said origin in a second pair of opposing quadrants of said rectangular coordinate system (Fig. 10C).

Maeshima teaches a red emitter that can occupy a left unit-area polygon in said first pixel row, a green emitter that can occupy a left unit-area polygon in said second pixel row and a red emitter that can occupy a right unit-area polygon in said second pixel row, and a blue emitter that can occupy a center unit-area polygon in both said first and second pixel rows and it is obvious to know that two blue emitters should be connected to **the same data driver** which is where they have to receive their video signal.

I is well known that any emitter of the blue emitter, red emitters and green emitters is connected to a data driver, in which the emitters receive data signal and any emitter of the blue emitter, red emitters and green emitters is connected to a driver, in which the emitters receive control signal. From Maeshima, each of the blue emitter, red emitters and green emitters receives data signal or control signal from a row driver or a column driver and the neighboring blue emitters are connected to the same row driver or column driver.

The prior art does not explicitly teach a left and a right unit area polygon, a blue emitter square shaped, and L-shaped green and red emitters. The prior art teaches an arrangement of LEDS in each light emitting block of red color signal, green color signal, and blue signal where the arrangement of Fig. 10C (2) consists of three color pixels elements. Thus, it would have been obvious to a person of ordinary skill in the art to modify the arrangement of LEDS in each light-emitting block of red color signal, green color signal, and blue signal where the arrangement of Fig. 10C (2) to achieve the function of a left and a right unit area polygon, a blue emitter square shaped, and L-shaped green and red emitters because it would provide an LED display device includes an LED display section including a plurality of light emitting blocks arranged in a matrix, each light emitting block including at least a red LEQ, a green LED and a blue LED and it is also obvious a person of ordinary skill in the art to know if two devices can perform the same function their shape does not matter.

A pixel element having larger blue emitter area is well known in the art and therefore the pixel element has a larger drive-to-luminance gain. Maeshima's Fig. 10C is only a schematic, the actual geometry or shape of the blue emitter or red emitters or green emitters may be different and are easily manufactured to have different sizes and shapes. One of the ordinary skill in the art understand Maeshima's pixel element in Fig. 10C includes emitters having different sizes and shapes. Emitters having different sizes and shapes are well known in the art.

Maeshima teaches an arrangement of LEDS in each light emitting block of red color signal, green color signal, and blue color signal where the arrangement of Fig. 10C (2) consists of a three-color pixel element. The arrangement can be divided into four different quadrants where the blue color is at the center of the quadrants disposed at the origin of an X and Y

coordinates system forming a first, a second, a third, and fourth quadrant corresponding to providing a three-color pixel element comprising first and second pixel rows, each pixel row including three unit-area polygons, wherein an emitter occupies each said unit-area polygon, wherein a red emitter occupies a left unit-area polygon in said first row and a green emitter occupies a right unit-area polygon in said first pixel row, wherein a green emitter occupies a left unit-area polygon in said second pixel row and a red emitter occupies a right unit-area polygon in said second pixel row, wherein a blue emitter occupies a center unit-area polygon in both said first and said second pixel rows, and wherein adjacent horizontal pairs of said three-color pixel elements are vertically offset from one another by one said pixel row; and driving said blue emitters, said red emitters, and said green emitters, wherein said blue emitters of said three-color pixel element is coupled to a pair of blue emitters of a next nearest neighboring three-color pixel element. It is obvious to know that two blue emitters of two three-color pixel elements should be connected to the same data driver or same column driver because that is where they have to receive their video data for the display.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (571) 272-7665. The examiner can normally be reached on 8:00 - 6:30 (Mon-Thu).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

jcw

KEE M. TUNG
SUPERVISORY PATENT EXAMINER